



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/590,242

06/22/2007

Rolf Huss

32164-235590

6891

26694

7590

04/17/2009

VENABLE LLP

P.O. BOX 34385

WASHINGTON, DC 20043-9998

EXAMINER

DONDERO, WILLIAM E

ART UNIT

PAPER NUMBER

3654

MAIL DATE

DELIVERY MODE

04/17/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,242	<b>Applicant(s)</b> HUSS ET AL.	
	<b>Examiner</b> WILLIAM E. DONDERO	<b>Art Unit</b> 3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/22/2006</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not appear to have any discussion of an incremental encoder as in Claim 4.

### ***Claim Objections***

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 18 has been renumbered 17.

Applicant is advised that should claim 1 be found allowable, claim 5 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3654

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, and 7-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Orizio Paolo S.P.A. (WO-03031708) referred to hereinafter as "Orizio". Regarding Claims 1, 5, and 7, Orizio discloses a yarn delivery device, in particular for knitting machines, having a yarn delivery wheel 17 around which the yarn 18 to be delivered loops in at least one winding for conveying of the yarn, having an electric motor 23 which has a shaft which is connected, fixed against relative rotation, with the yarn delivery wheel, having an angle encoder 27 for detecting the rotated position of the yarn delivery wheel, wherein the angle encoder has a angular resolution (Figures 1-3). Orizio does not disclose specific values for the angular resolution, diameter of the yarn delivery wheel, or the ratio between the angular resolution and the diameter of the yarn wheel. However, one of ordinary skill in the art is expected to routinely experiment with the parameters, especially when the specifics are not disclosed, so as to ascertain the optimum or workable ranges for a particular use. Accordingly, it would have been obvious through routine experimentation and optimization, for one of ordinary skill in the art at the time of the invention to design the yarn delivery device such that the ratio of the angular resolution of the encoder to the diameter of the yarn delivery wheel is greater than 3 or 5 mm<sup>-1</sup> to achieve the necessary accuracy as the yarn delivery wheel gets larger. Regarding Claim 2, Orizio discloses the angle encoder is connected with the shaft (Figures 1-3; Page 4, Lines 19-25). Regarding Claim 3, Orizio discloses the shaft is a shaft extending through the electric motor, at one of whose ends the yarn

Art Unit: 3654

delivery wheel is fastened, and on the other end the angle encoder (Figures 1-3; Page 4, Lines 19-25). Regarding Claim 8, Orizio discloses the angle detector is connected to an actual value input of a control loop (Figures 1-3). Regarding Claim 9, Orizio discloses that the control loop has a desired value input which is designed for receiving external desired position signals (Figures 1-3).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Orizio (WO-03031708) as applied to claims 1-3, 5, and 7-9 above, and further in view of Van Pelt et al. (US-4953044). Orizio is silent about the angle encoder being an incremental encoder. However, Van Pelt et al. disclose an incremental encoder in a feeding device (Column 2, Lines 3-6). Because both Orizio and Van Pelt et al. teach encoders it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the incremental encoder of Van Pelt et al. for the Orizio to achieve the predictable result of measuring the angular position of the motor as taught by Van Pelt et al. (Column 2, Lines 3-6).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Orizio (WO-03031708) as applied to claims 1-3, 5, and 7-9 above, and further in view of Abedor et al. (US-6082653). Orizio is silent about the angle encoder being an optical step sensor. However, Abedor et al. disclose an optical encoder in a feeding device (Column 2, Lines 39-44). Because both Orizio and Abedor et al. teach encoders it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the optical step sensor of Abedor et al. for the Orizio to achieve the

Art Unit: 3654

predictable result of measuring the angular position of the motor as taught by Abedor et al. (Column 2, Lines 39-44).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Orizio (WO-03031708) as applied to claims 1-3, 5, and 7-9 above, and further in view of Bigler et al. (US-5912541). Orizio is silent about the control loop being a PD regulator. However, Bigler et al. disclose a motor 45 with an encoder 48 and a PID regulator 53 (which encompasses a PD regulator) (Figures 1-7). It would have been obvious to one of ordinary skill in the art at the time of the invention to add the PID (or PD) controller of Bigler et al. to the control loop of Orizio to achieve more accurate and precise control of the feeder.

Claims 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orizio (WO-03031708) as applied to claims 1-3, 5, and 7-9 above, and further in view of Leins et al. (US-6105398). Regarding Claims 11-14, Orizio is silent about the control loop being connected to a tension regulator with a device for disturbance variable compensation; the control loop is connected with a yarn tension sensor for detecting yarn tension; a comparator circuit is connected to the yarn tension sensor, which compares the detected yarn tension with a desired yarn tension and determines a desired position signal from the comparison; and a regulating circuit which is set up for a dragging mode of operation, in which the current supply to the electric motor cause a torque insufficient for independent yarn conveyance. However, Leins et al. disclose a yarn feeding device with a control loop connected to a tension regulator 15 with a device 19,21,22 for disturbance variable compensation; and the control loop is

Art Unit: 3654

connected with a yarn tension sensor 24 for detecting yarn tension; a comparator circuit 18 is connected to the yarn tension sensor, which compares the detected yarn tension with a desired yarn tension and determines a desired position signal from the comparison; and a regulating circuit 18 which is set up for a dragging mode of operation (turning motor 19 applies drag on yarn 34 via 21 and 22), in which the current supply to the electric motor cause a torque insufficient for independent yarn conveyance (Figures 1-3). It would have been obvious to one of ordinary skill in the art at the time of the invention to add the tension regulator of Leins et al. to the yarn feeder of Orizio to control the tension of the yarn as it is fed to the knitting machine. Regarding Claim 15, Orizio discloses that a control circuit is provided, which registers the revolutions of the electric motor in any mode of operation by means of an angle encoder (Figures 1-3). Regarding Claim 16, Orizio discloses that an allowance for the positive delivery mode of operation is obtained from the registered revolutions (Figures 1-3). Regarding Claim 17, Orizio discloses the allowance is obtained from the registered revolutions of several yarn delivery devices (Figures 1-3).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Oneda (US-20050146294) and Tang et al. (US-20030122019) is cited for disclosing yarn feeding devices with angle encoders.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM E. DONDERO whose telephone number is

Art Unit: 3654

(571)272-5590. The examiner can normally be reached on Monday through Friday 6:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Q. Nguyen can be reached on 571-272-6952. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John Q. Nguyen/  
Supervisory Patent Examiner, Art Unit 3654

/W. E. D./  
Examiner, Art Unit 3654